



Data Standards and the United States Health Information Knowledgebase

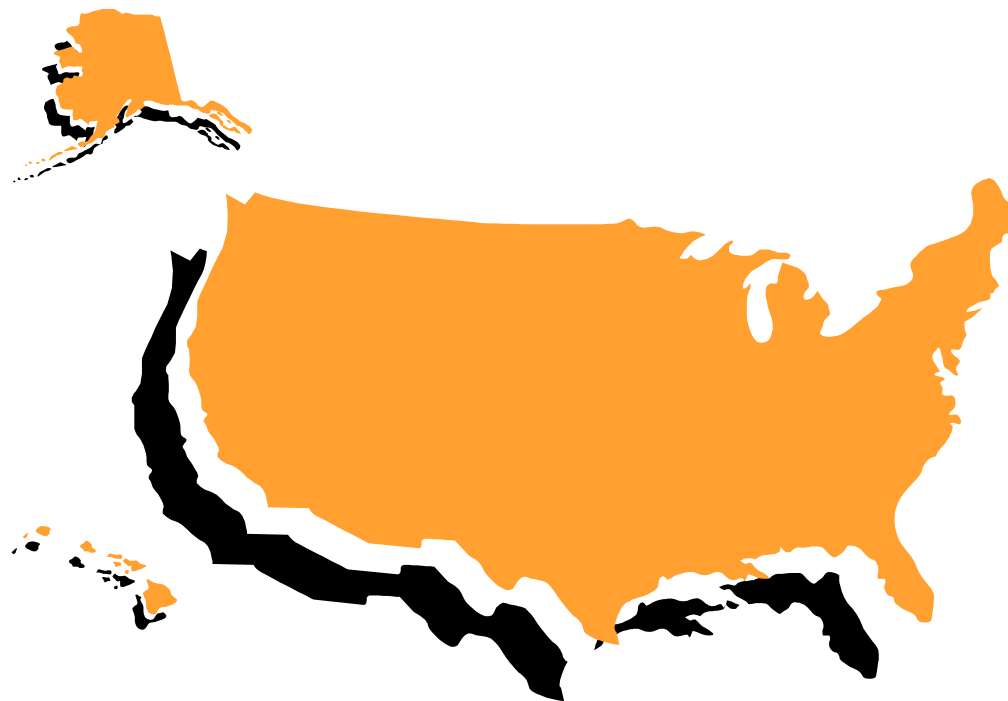
AHRQ Annual Research Conference 2011

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Agency for Healthcare Research and Quality (AHRQ)



Mission

Improve the quality, safety, efficiency and effectiveness of health care for all Americans



Presentation

- **Moderator:** J. Michael Fitzmaurice PhD, AHRQ
- **Speakers:**
 - John Donnelly, IntePro Solutions
 - Robin Barnes, Data Consulting Group



Learning Objectives

- **What is the U. S. Health Information Knowledgebase ?**
 - A metadata registry
 - Supporting the HHS Secretary's Initiatives
- **Why is USHIK important?**
 - To AHRQ
 - For Quality Measures
 - For Patient Safety Common Formats
- **What can you do with USHIK.ahrq.gov?**
 - Application Projects implemented as USHIK Portals

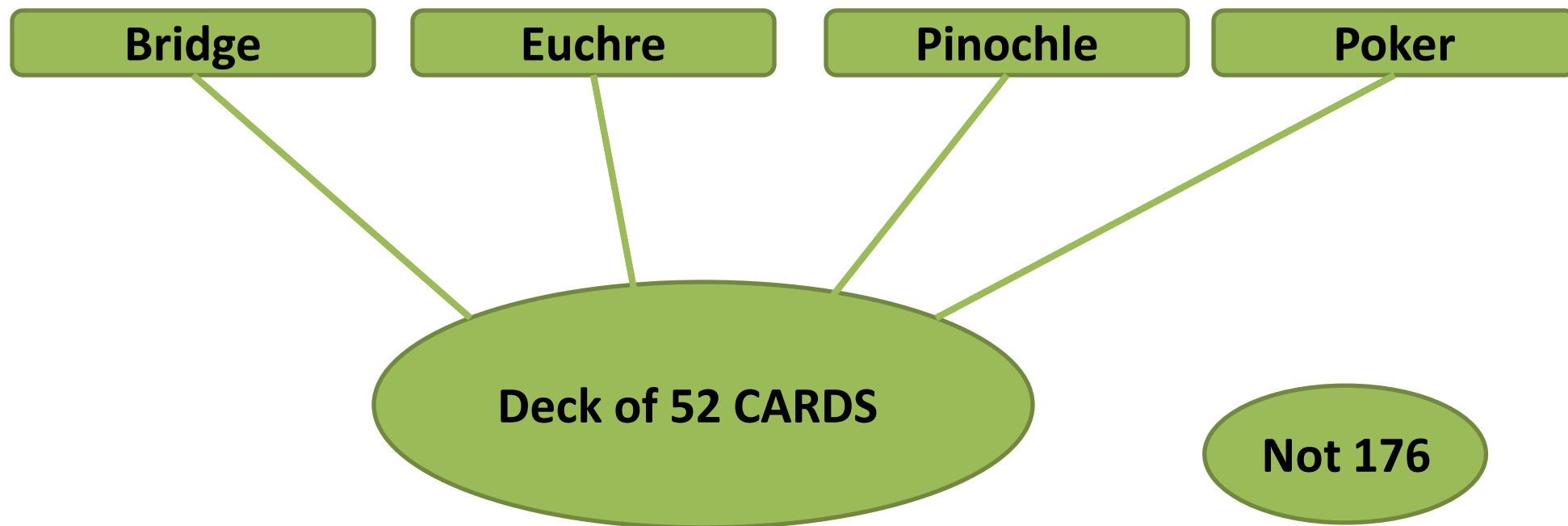


Card Games Metadata Registry

- Each game master is the authority for its game's cards
- The same card can be used in different games
- The same metadata about a card can be reused many times, in a metadata registry
- Bridge: All **52** cards
- Euchre: **24** cards, all higher than an 8
- Pinochle: **48** cards, all higher than an 8, duplicated
- Poker: All **52** cards
- In total, it would take **176** cards for each of you to display the cards for your games with separate decks

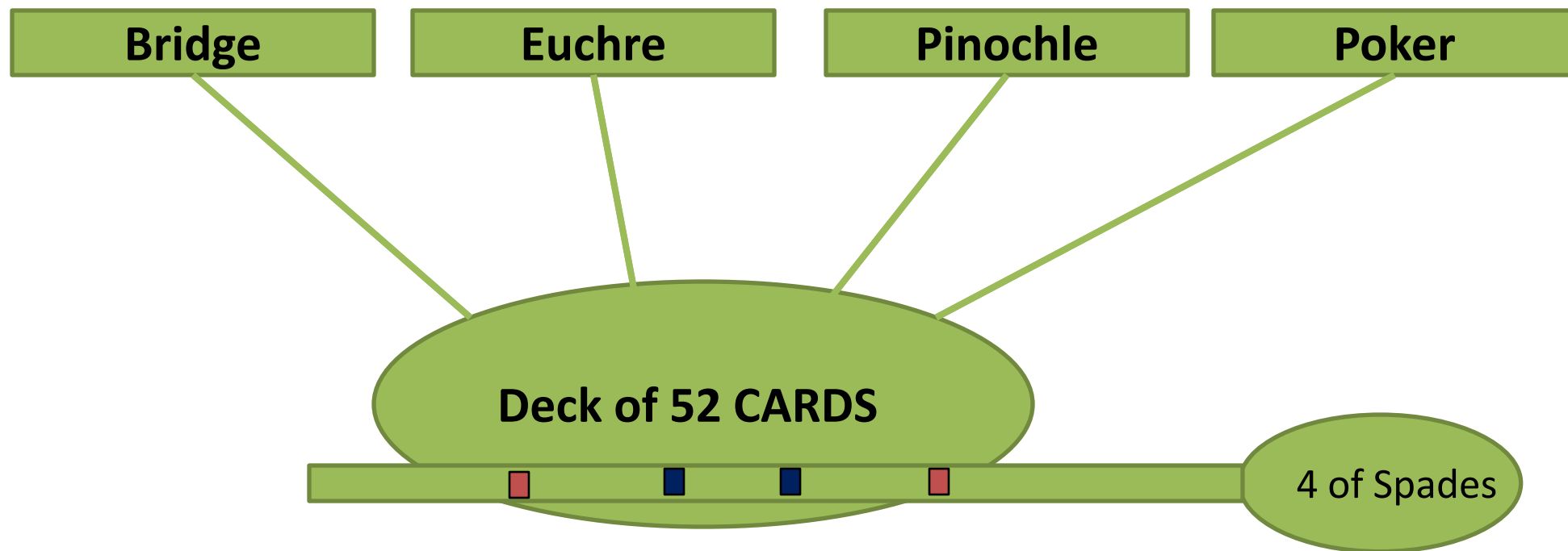


What cards are needed to play?





Which games use the 4 of spades?





Bridge: Normal Deck of 52 Cards

- Data element name(1 of 52): **4 of spades**
- Attributes:
 - Definition playing card
 - Number 4
 - Suit spades
 - Odd/even even
 - Picture card No
 - Authority You, or Hoyle
 - Version or date effective 12-14-1917
 - Bridge deck member Yes
 - Pinochle deck member No
 - Euchre deck member No
 - Poker deck member Yes

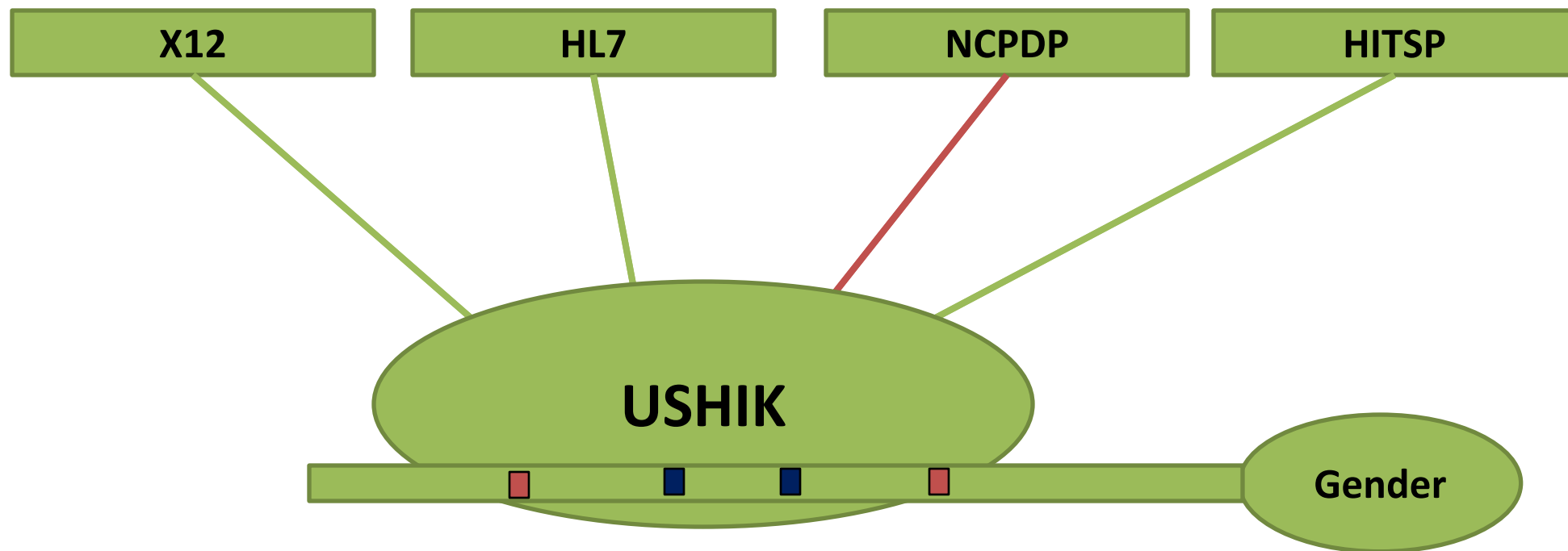


Example: AHRQ-USHIK Data Element

- Data element name: **Gender code**
- Attributes (Metadata):
 - Definition: For eligibility, id gender of the individual member
 - Context: NCPDP Data Dictionary
 - Registered Authority: NCPDP
 - Effective date: 2001-11-27
 - Data type: Alphabetic extended
 - Representation Layout: X(1)
 - Value Domain: Gender, Coded_VD
 - Codes: M (male), F (female), blank (unknown)



How does each authority express gender?





Comparison Matrix Aids in Harmonizing Data Elements

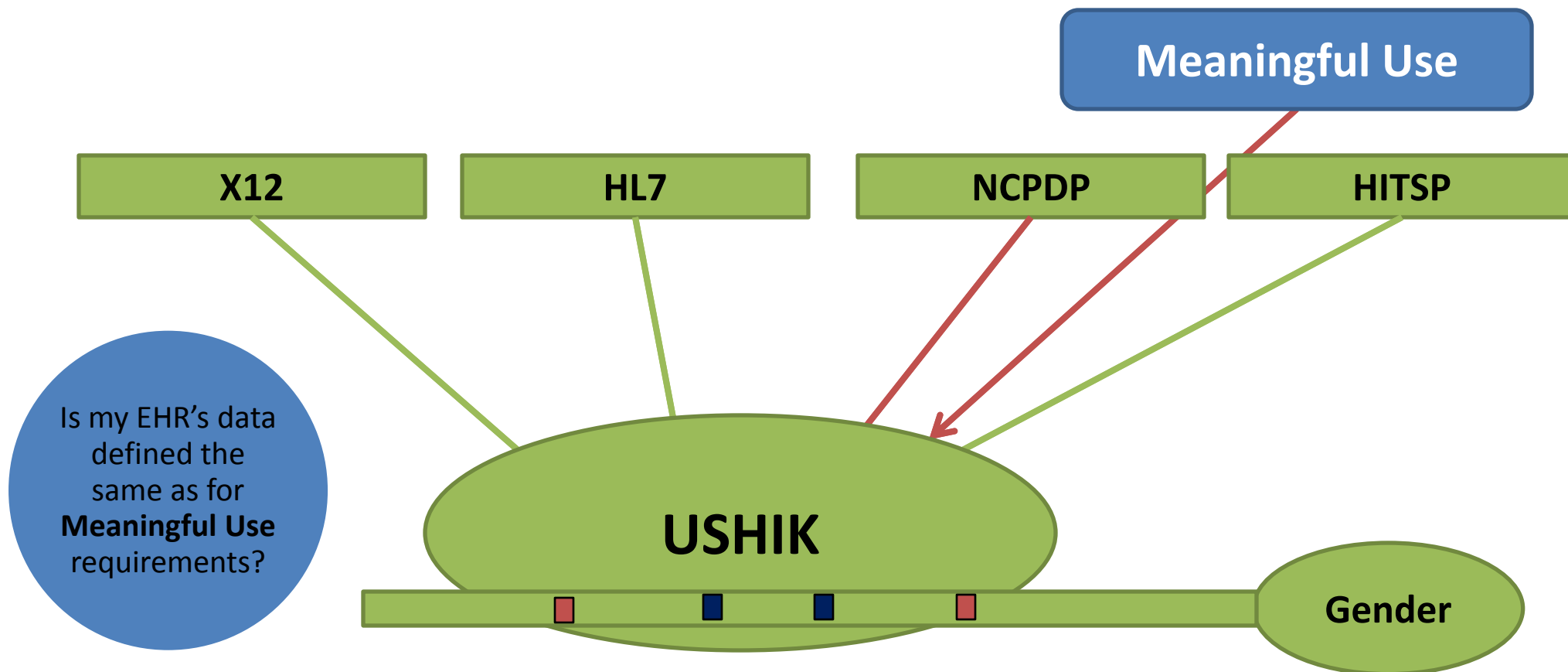


Comparison Matrix

Organization: CMS	NCPDP	X12
Data Element ID: 0060-92-764-5622.65902.v000	0060-02-166-0014.60872.v0	0060-07-329-4837.25320.v0
Data Element Name: Gender	Gender Code	Gender Code
Definition: 1 = Male; 2 = Female; 3 = Unknown/not stated as recommended by the Uniform Hospital Discharge Data Set and the Uniform Ambulatory Care Data Set.	For eligibility, and identifying the gender of the individual member.	A code indicating the gender of the patient or insured.
Context: NCVHS Core Health Data Elements	NCPDP Data Dictionary	X12N Health Care Data Element Dictionary
Registration Status: Incomplete	Incomplete	Incomplete
Status Date: 2002-07-08	2001-11-27	2001-10-17
Comments:		This data element utilizes a sub domain of the X12 data element domain that is based on the its use in a Transaction Set. Please refer to the Transaction Set Implementation Guide for the specific sub domain utilized.
Data Collection Methods:		
Data Type: N	x(1)	ID
Minimum Size: 1	1	2
Maximum Size: 1	1	2
Representational Layout: Not Provided	Not Provided	Not Provided
Representational Form: Not Provided	Not Provided	Not Provided
Unit of Measure: Not Provided	Not Provided	Not Provided
Precision: 0	0	0
Minimum Range:		
Maximum Range:		
Data Domain: 1 Male 2 Female 3 Unknown/not stated	M Male F Female U Unknown	F Female M Male U Unknown



Do the data elements in my EHR fit Meaningful Use specifications?





What Portals are in USHIK?

USHIK - United States Health Information Knowledgebase

- *HHS Secretary's adopted, endorsed, recognized data elements: HIPAA, CHI, HITSP, and all other data elements*

HITSP – Healthcare Information Technology Standards Panel

- *HITSP data elements linked to all 13 HITSP use cases, interoperability specifications, and other documents*

Patient Safety Common Formats

- *Specifications for electronically reporting patient safety events in hospitals among Patient Safety Organizations*

Meaningful Use Measures Metadata (pilot)

- *Quality measures and data elements associated with their numerators, denominators, inclusions, and exclusions*

State All-Payer Claims Databases (pilot):

- *Data element specifications from all-payer databases of 7 states*

Standards and Interoperability Framework (New)

- *Data element Specs from Transitions of Care, Lab Results Interface, and CDA Harmonization initiatives.*



Application Projects Highlighted

- **HITSP**
 - **ONC, AHIC Use Case's resolved into Interoperability Specs and other constructs**
- **S&I Framework**
 - **ONC, Use Case's resolved into Requirements, Standards Analysis and Reference Implementation artifacts**
- **Meaningful Use**
 - **CMS, Quality Measure numerators & denominators, exclusions etc**



HITSP Project Background

- **Approach**

- Use Case's – **AHIC**
- Standards Analysis – **HITSP**
- Pilot Implementations – **NwHIN**

- **Artifacts**

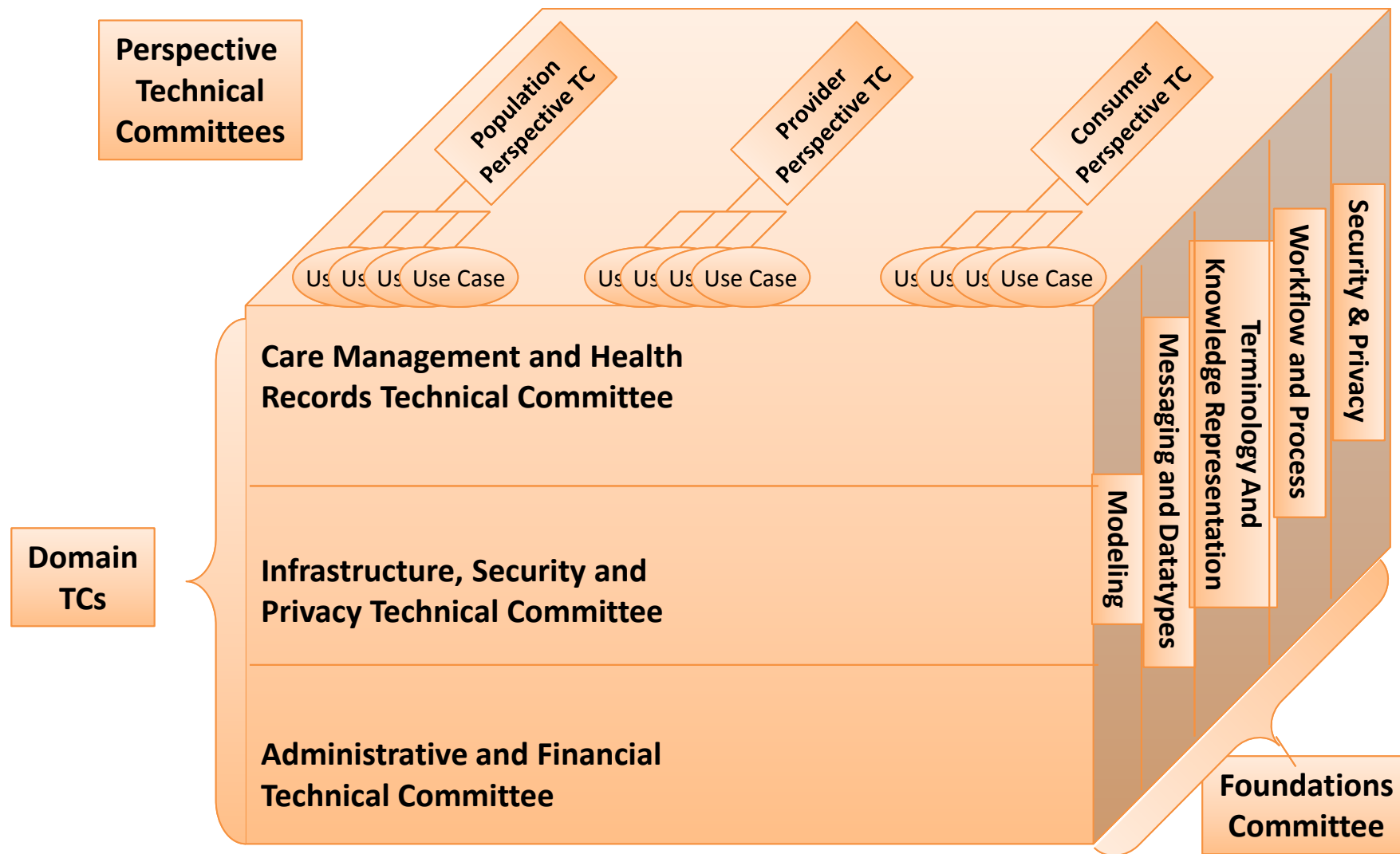
- Interoperability Specs; Transactions/Transaction Packages; Components

- **Data**

- Transaction Metadata; Clinical Data



HITSP Project Organization





HITSP Deliverables

- **Use Case Artifacts**
 - 15+ Interoperability Specs
 - 30+ Transaction Packages / Transactions
 - 40+ Components
- **Technical Notes (7)**
- **Acronym and Data Element Glossaries**
- ***<http://www.hitsp.org>***



USHIK Focus and Deliverables

- **HITSP Data Component Artifacts**
 - Constrain existing data standards from SDO's
 - HL7 CDA, HL7 2.x, ASTM CCR, ANSI X12, etc
 - Re-purposing structure for CDA data elements
 - C154 → C83 → C32, C37, C48, C78
- **Clinical Data Portal:**
 - Clinical Data “Concepts”
 - “Model” Primarily Use Case specific
 - Leverage HITSP Glossaries



USHIK Demonstration

HITSP Portal



S&I Framework Project Background

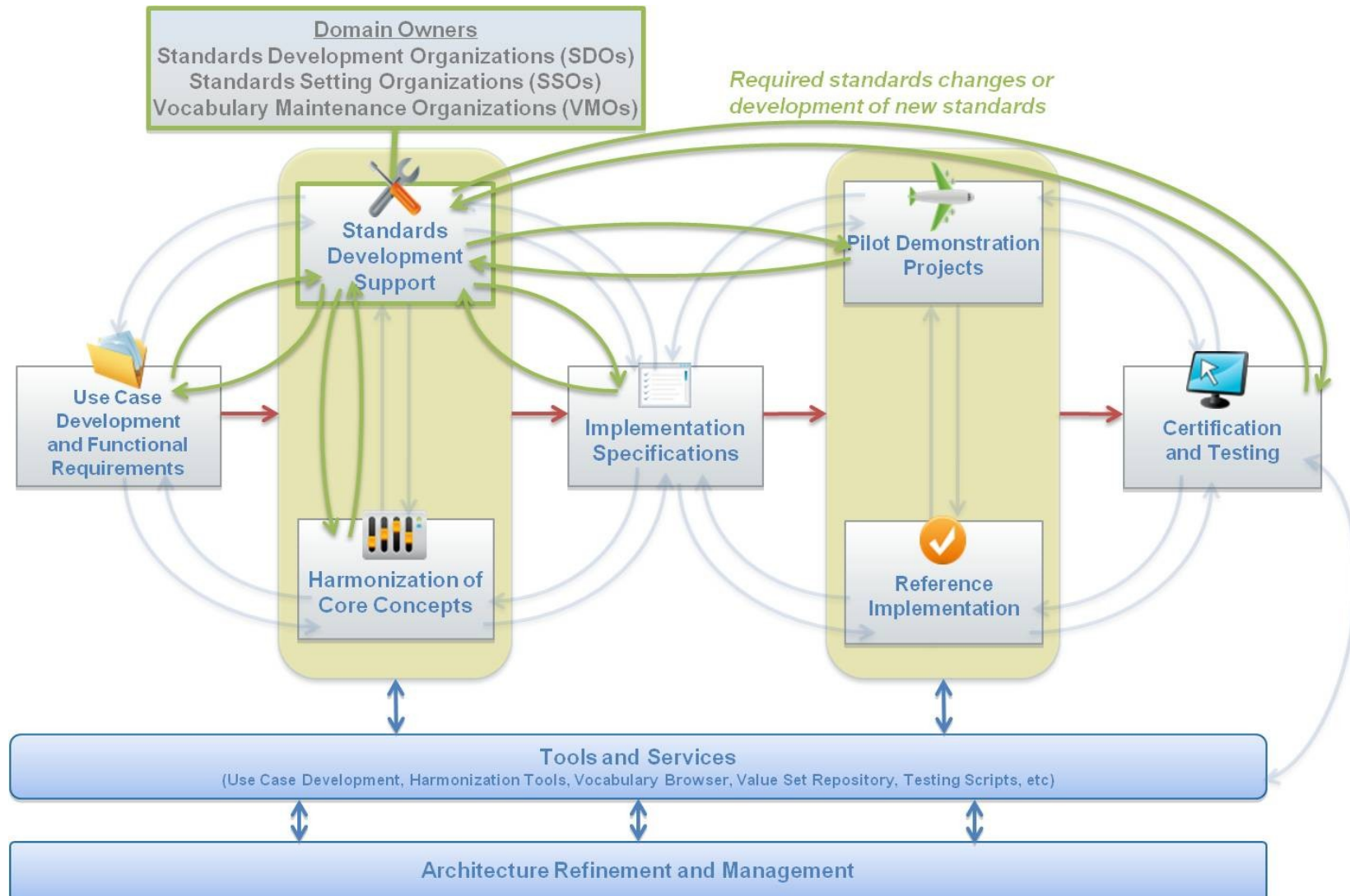
- **Approach:**

- Use Case's, Standards Analysis, Reference and Pilot Implementations → Single Contiguous Program
- Cross-Use Case Harmonization; Use Case Simplification WG for re-purposing

- **Artifacts**

- Use Case Requirements, Clinical Information Model (CIM). Standards Analysis Worksheet, Reference Impl Guide, Pilots Results

S&I Framework Project Organization





S&I Framework Deliverables

- **Use Case and Implementation Artifacts**
 - 2 Clinical Operations Initiatives
 - Transitions of Care (ToC), Lab Results Interface (LRI)
 - 2 IT Infrastructure Initiatives
 - Provider Directories, Certificate Interoperability
 - 1 Population Health Initiative (new)
 - Query Health
- **Cross-Initiative Workgroups and Functions**
- ***<http://wiki.siframework.org>***



USHIK Focus and Deliverables

- **S&I Cross-Initiative Artifacts**
 - **Use Case Simplification Matrix**
 - Actors, Actions, Data Element Sets (DES)
- **Clinical Information Model (CIM)**
 - Transitions of Care (ToC), Lab Results Interface (LRI)
- **Standards Analysis Results**
 - CDA Consolidation Ballot templates
 - DES correlation to SDO standards
 - Currently CDA, HL7 v2.x



USHIK Demonstration

S&I Framework Portal



Meaningful Use Project Background

- **Approach**

- Product Certification as per HITSP interoperability requirements (ONC/NIST)
- Administrative/Operational process changes
- Quality Measures in harmonization with existing AHRQ authored measures (CMS/AHRQ/NQF)

- **Artifacts**

- Quality measures expressed as “eMeasures” leveraging HITSP and S&I Framework recognized data definitions and vocabularies



Meaningful Use Measures

- **Meaningful Use Guidance**
 - Administrative/Operative and Clinical measures
 - eMeasure Numerators, Denominators, Exclusions, Inclusions
- **Targeting EP and EH provider types**
 - PQRI, RHQDAPU, NQF
- **Time Period Based Registration & Attestation Requirements to Qualify**
- ***<http://healthit.hhs.gov/portal/server.pt?open=512&mode=2&objID=3584>***



USHIK Focus and Deliverables

- **Quality Measure Definition**
 - Description, objective, numerical components
- **Help with knowing “what measures are for what purpose”**
 - MU, PQI, other quality improvement/payment programs
- **Help with knowing more about the data elements used in the measure**
 - Base Standards used (e.g SNOMED, LOINC)
 - Where else these data elements are used



USHIK Demonstration

MUMM Portal



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Name:

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Subject: ☐ Change
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Comments:



Lessons Learned

- Use information models
- Trade off value of what USHIK supplies against the cost of supplying it
- Intellectual property has value—protect its value
- Work with users
 - Anticipate their needs and save them time
 - Give them accuracy and save them money
 - Seek their feedback



Finale

- Data Dictionaries promote understanding
- Metadata registries promote interoperability, reuse, and one-stop shopping for information
- Researchers need health data that are more uniform, accurate, and computerized

Don't we all!

- See the HITSP, S&I Framework, Meaningful Use, Common Formats and APCD Portals at <http://ushik.ahrq.gov>



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Thank You

